Lab Syllabus

Atm Sci 360 – Synoptic Meteorology I
Lecture: TR 9:30 - 10:45a, EMS E150
Lab: W 2 - 3:50p, EMS W434
Fall 2018

Teaching Assistant: Austin Harris
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Office: EMS W422 (back by the window, behind the bookshelf)
Office Hours: W 12:15 - 1:45p (before lab) or by appointment

Lab Goals
Labs will be a time for *applying* what is taught in lecture. We will analyze real-time weather observations to develop our conceptual models of the atmosphere which, in turn, will help solidify the theory.

Lab Overview
The first 10-20 minutes of each lab will begin with a weather briefing where we will apply the material learned in class to real-time observations of the atmosphere. The rest of the lab period will be spent working on the graded lab assignment.

Materials
Normal class materials (folder, notebook, pencil) plus <u>colored pencils</u>.

Assignment Expectations
Though group work is fine, assignments should be completed individually and will be due exactly one week after they are assigned (by the beginning of the next lab).

Grading
Labs will count as 48% of your grade in ATM SCI 360. There will be twelve lab assignments, meaning that each is worth 4% of your final grade in the course. Labs will be due exactly one week after they are assigned (by the beginning of the next lab), and can be turned in to my mailbox, to me personally, or at the beginning of the next lab. Late work will be accepted only with a 33% per day penalty. Exceptions will only be granted in the circumstance of an approved emergency situation.

Schedule

Wk 1   (9/5)   Title: Meteorological Data
                      Topics: *Code/decode METARs, station plots, interpret satellite data*

Wk 2   (9/12)   Title: Isoplething Part I: Upper Levels
                      Topics: *Isopleth + identify features on 250, 500, 700, and 850mb charts*

Wk 3   (9/19)   Title: Isoplething Part II: The Surface
                      Topics: *Isopleth + identify features on surface charts*

Wk 4   (9/26)   Title: Evaluating Temperature Advection
                      Topics: *Determine temperature advection on weather maps*

Wk 5   (10/3)   Title: Applying the Hypsometric Equation
                      Topics: *Explain the vertical structure of cyclones/anti-cyclones*

Wk 6   (10/10)*   **No Lab** (Midterm 1 Exam Week)

Wk 7   (10/17)   Title: Understanding Geostrophic Balance
                      Topics: *Understand and identify geostrophic/ageostrophic flows*

Wk 8   (10/24)*   Title: Thermal Wind Applications
                      Topics: *See relationships between upper-level flow and temp advection*

Wk 9   (10/31)   Title: Fronts
                      Topics: *Identify on maps, see vertical motions, and relations to upper-levels*

Wk 10 (11/7)   Title: Jets and Other Force Balances
                      Topics: *Apply the 4-quadrant model, understanding gradient balance*

Wk 11 (11/14)   **No Lab** (Midterm 2 Exam Week)

Wk 12 (11/21)   **No Lab** (Thanksgiving)

Wk 13 (11/28)   Title: Kinematics
                      Topics: *Vertical motions from: conv/div, conf/dif, vorticity advection*

Wk 14 (12/5)*   Title: Soundings Part I
                      Topics: *Using the parcel method to determine stability parameters*

Wk 15 (12/12)   Title: Soundings Part II
                      Topics: *Using the layer method*

Wk 16 (12/19)   **No Lab** (Final on 12/20)

*AH substituting for Dr. Evans in lecture.